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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/533,227 | 10/03/2005 | Didier Bonnet | 1022702-000267 | 8892 |

21839 7590 09/08/2008
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
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| EXAMINER | |
|---|---|
| COHEN, STEFANIE J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 4162 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 09/08/2008 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/533,227 | BONNET ET AL. | |
| | Examiner | Art Unit | |
| | STEFANIE COHEN | 4162 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *20-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20-21, 25-27, 29-30 and 32-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al (6307100) in view of Pesa et al (4536597) and further in view of Wu (4120902). Richardson teaches a catalytic oxidation of hydrocarbons. Richardson, col. 4 lines 66-67, teaches cyclohexane (cycloaliphatic hydrocarbon) oxidized to an adipic acid (dicarboxylic acid) in the presence of oxygen. Richardson further teaches using transition metals such as manganese and cobalt as oxidation catalysts. Although Richardson teaches using co-solvents in combination with the hydrocarbons, Richardson does not teach using an oxidation solvent that is lipophilic in nature. Pesa teaches a selective hydrocarboxylation of propylene to isobutric acid. Pesa, examples 1-3, uses octanoic acid as a solvent. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the octanoic acid taught by Pesa as a solvent in the Richardson reaction because Pesa, col. 4 lines 51-54, teaches octanoic acid increases the stability of the catalyst system and the

activity of the catalyst with respect to conversion. Although Richardson modified by the Pesa solvent teaches a cyclohexane reaction in an octanoic acid solvent, Richardson nor Pesa teach an extraction method of the final product. Wu teaches an oxidation product recovery where the first extraction step comprises water and methanol. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the Wu extraction step comprising water and methanol with the Richardson modified by the Pesa solvent because Wu teaches this step is one specific and efficient way of separating the organic phase which contains the from the aqueous phase. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the quantity of methanol and water to obtain maximum separation of the organic and aqueous phase.

Regarding claim 21, Pesa, examples 1-3, teaches octanoic acid as a solvent.

Regarding claims 25-26, Wu teaches an oxidation product recovery where the first extraction step comprises water and methanol. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the quantity of methanol and water to obtain maximum separation of the organic and aqueous phase.

Regarding claim 27 and 29-30, Wu teaches a second extraction solvent to be cyclohexane.

Regarding claims 32-33, the hydrocarbon is cyclohexane.

Regarding claim 34-35, Pesa teaches using octanoic acid as a solvent.

Regarding claims 36-37, Richardson teaches using transition metals such as manganese and cobalt as oxidation catalysts.

Regarding claim 38, Richardson teaches the dicarboxylic acids produced are adipic acids.

Claims 22-24, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al (6307100) in view of Pesa et al (4536597) in view of Wu (4120902) and further in view of Boogers et al (6231821).
Although Richardson, Pesa and Wu teach a cyclohexane reaction in an octanoic acid solvent using water as an extraction step, Richardson, Pesa and Wu do not teach an extraction column method of the dicarboxylic acids. Boogers, col. 3 lines 55-60, teaches an extraction process using a counter currently operated vertically placed vessel. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a Boogers counter- current vessel to extract the Richardson dicarboxylic products because the Boogers vessel is a specific vessel that can separate the organic phase from the aqueous phase.

Regarding claims 23-24, Boogers, col. 3 lines 20-25, teaches the lower temperature limit is not critical, provided that the temperature is sufficiently high in order to keep the compounds in the fluid state. Boogers further teaches the pressure is not critical, provided that phase separation will take place.

Regarding claim 28, it would have been obvious to one of ordinary skill in the art at the time of the invention it incorporate the first and second extraction solvents into the Boogers vessel to obtain maximum purification of the dicarboxylic acids.

Regarding claim 31, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the location of the feed flow into the column to obtain maximum purification of the dicarboxylic acids.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEFANIE COHEN whose telephone number is (571)270-5836. The examiner can normally be reached on Monday through Thursday 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jenny McNeil can be reached on 5712721540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stefanie Cohen 8/26/2008

SC

/Jennifer McNeil/
Supervisory Patent Examiner, Art Unit 4162